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ABSTRACT

The relationship of achievement-related motivational variables and subjective probability of success to curricular choice in college males was studied. When the fear of failure was greater than the need for achievement, Ss chose majors with either a low or high probability of success, regardless of how probability of success was judged. When need for achievement was the greater of the motives, results depended on how probability of success was determined. Subjects chose majors with a low or high probability of success when the self was used as the standard of judgment, but chose majors with an intermediate probability of success when others were used as the standard. Results were discussed in terms of Atkinson's model of risk-taking, and the significance of the method of determining probability of success was stressed. (Author)

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Motivational Determinants of Curricular Choice in College Males[1]

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Atkinson's (1957, 1958) model of risk-taking suggests that in situations involving a success-failure dimension choice is a function of both the need for achievement and fear of failure motives. A number of studies have used Atkinson's model to investigate vocational and college curricular choice. For example, Mahone (1960) found that realistic vocational choices were made most often by college students scoring high in need for achievement and low in test anxiety. On the other hand, unrealistic choices were made most often by students low in need for achievement and high in test anxiety. Isaacson (1964) found that when need for achievement was greater than fear of failure male college students chose majors with an intermediate probability of success. Majors with either a low or high probability of success were chosen when the fear of failure was greater than the need for achievement.

Recent studies (Morris, 1966; Tseng and Carter, 1970) have used resultant motivation scores to investigate vocational and curricular choice. Resultant motivation scores are obtained by standardizing need for achievement and fear of failure measures and subtracting the latter from the former. A positive resultant motivation score thus indicates that the need for achievement is greater than the fear of failure, etc. Morris (1966) found that male high school seniors whose resultant motivation scores were high (above the median in his sample) made vocational choices involving an intermediate degree of risk. Students low in resultant motivation made choices indicating

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an avoidance of an intermediate degree of risk. Finally, Tseng and Carter (1970) found that male high school students high in resultant motivation have more accurate perceptions of occupational prestige, possess higher occupational aspirations, and choose more prestigious occupations than students low in resultant motivation. If high occupational aspirations and prestigious occupational choices involve a high degree of risk, Tseng and Carter's results may actually contradict previous findings in that positively motivated subjects made choices involving a high rather than an intermediate degree of risk.

The use of Atkinson's model has much to offer in approaching the problem of curricular choice. The use of resultant motivation scores in research on curricular choice is particularly appealing since it permits classification of subjects along a single dimension. Unfortunately, the two studies (Morris, 1966; Tseng and Carter, 1970) using resultant motivation scores involved high school students in hypothetical risk-taking situations. Consequently, the present study was designed to investigate the relationships of resultant motivation to actual curricular choice in college students. Finally, the possiblity of conflicting results in recent studies (Morris, 1966; Tseng and Carter, 1970) raises questions concerning the manner in which probability of success is determined. Thus, the present study was also designed to investigate how the student's perceived probability of success influences curricular choice when the individual and when others are used as the standards for such judgments.

Method

Subjects

The Ss were 142 male, college juniors enrolled in the School of Management at Boston College. Subjects were selected randomly using a

stratified sampling procedure to insure representation of each of the six majors (Accounting, Computer Science Management, Economics, Finance, Management Production, and Marketing) offered by the School of Management. Twenty-five Ss from each of five majors, and 17 Ss, the total choosing the sixth major (Computer Science Management), comprised the sample.

Tests and Procedures

All testing was conducted on the same day that Ss were required to record a choice of a major and was scheduled as part of that day's orientation sessions. Subjects were administered three measures. The first measure was the Cue Interpretations Test, adapted from Horner (1968). This measure consists of four written statements or cues, around which Ss are requested to write imaginative stories. Storeis are scored for need for achievement in the same manner as in the Thematic Apperception Test (Murray, 1938). All Ss were also administered the Debilitating Anxiety Scale of the Alpert-Haber Achievement Anxiety Test (Alpert and Haber, 1960). The Achievement Anxiety Test has been used frequently as a fear of failure measure. Finally, all Ss were administered the Curricula Questionnaire. Subjects were asked to rate each of the six majors on an eleven point scale (0, 10, 20,. . ., 100) by specifying: one, how many students out of 100 students, much like themselves, could be expected to receive their degrees in each major; and two, how many students out of 100 average students could be expected to receive their degrees in each major. The first set of ratings was used to determine the subjective probability of success with the self being used as the standard of judgment. The second set of ratings was used to determine the subjective probability of success with others being used as the standard of judgment.

Scoring

All of the protocols from the Cue Interpretations Test were scored for need-achievement according to a content analysis scoring system (McClelland, Atkinson, Clark, and Lowell, 1953). Thirty randomly-selected protocols were then scored independently to establish inter-rater reliability values. Finally, need-achievement raw scores were transformed to z-scores for all Ss. Scores on the Achievement Anxiety Test were obtained and likewise, transformed to z-scores. These were then subtracted from the corresponding need for achievement z-scores. Thus, a single score, the resultant motivation score, was obtained for all Ss. Ratings on the Curricula Questionnaire were used to determine the subjective probability of success for each major. Subjective probability of success was seen as falling into one of three categories: one, at or nearest to .50; two, closest to either 0.00 or 1.00; and three, all "other" choices. In scoring a questionnaire, the rating given each major was assigned to one of the categories, and the total number of choices falling into each category was computed. The categorization of ratings for each major was made on a relative basis for each S. For example, a rating of 40 would be placed in .50 category if no major had been rated at 50. On the other hand, a rating of 40 would be placed in the "other" category if another major had been rated as 50, and no other majors had been rated lower than 40 or greater than 60. Table 1 presents a hypothetical protocol and illustrates how data were quatified. Table 1 shows that Accounting was rated at 50, and hence is classified in the .50 category.

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Insert Table 1 about here

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The ratings of 20 given to Computer Science Management and to Finance are equally close to 0 and are classified in the 0.0 or 1.00 category. The rating of 30 given to Economics, the 40 given to Management Production, and the 70 given to Marketing are not at or nearest to .50, or closest to either 0.0 or 1.00 (70 is not as close to 100 as 20 is to 0) and, therefore, these ratings are all classified in the "other" category. This procedure was used to classify ratings on the Curricula Questionnaire for all Ss. Therefore, three scores, the number of ratings within each category, were obtained. It should be pointed out that the .50 category was considered as equivalent to an intermediate probability of success, while the 0.0 or 1.00 category was seen as indicating either a low or high probability of success.

Statistical Analysis

Analysis of curricular choices was made using a series of one-sample binomial tests. Separate analyses were performed for Ss with positive and negative resultant motivation scores on each question of the Curricula Questionnaire. In each case, the expected proportion of choices falling within a given category was determined on the basis of Curricula Questionnaire ratings. Expected proportions of curricular choices falling within each of the three categories were derived separately as follows. First, the number of curricula rated within each category was divided by 6 x N (the number of curricula multiplied by the number of Ss within that resultant motivation group). These proportions were considered to be the proportions of curricular choices expected within each category. Observed proportions were determined by classifying the actual curricular choices of Ss into one of the categories depending upon how they had rated the major they actually chose. These observed frequencies were then divided by the number

of Ss in that resultant motivation group to obtain the observed proportions.

Results

Pearson product-moment correlations were obtained to determine inter-rater reliability in scoring the Cue Interpretations Test. A correlation coefficient of .90 was found, indicating that the need for achievement scoring system was reliable.

The expected and observed frequencies and proportions of curricular choices of Ss with positive and negative resultant motivation scores on each question of the Curricular Questionnaire are presented in Table 2.

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Insert Table 2 about here

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Tests of the hypotheses concerning Ss with positive resultant motivation scores were based only on the expected and observed proportions within the .50 category, indicating an intermediate probability of success. Likewise, tests concerning Ss with negative resultant motivation scores were based on proportions of choices falling within the 0.0 or 1.00 category.

Results of the one-sample binomial tests of hypotheses concerning the curricular choices of Ss with positive resultant motivation scores are presented first. Table 2 shows that 91 Ss obtained positive resultant motivation scores. Of these, 12 Ss chose majors which they had rated on question one of the Curricular Questionnaire as representing an intermediate probability of success (.50 category). This resulted in an observed proportion of .13, whereas the expected proportion was .25. The one-sample binomial test of this data yielded a z of -2.58. This z is significant ($p < .01$, one-tailed) but is opposite in direction to that predicted. In other words, Ss with positive resultant motivation scores tended to choose majors which, on the

basis of implicit self comparisons did not represent an intermediate probability of success. On the other hand, 27 Ss chose majors which they had rated on question two of the Curricula Questionnaire as representing an intermediate probability of success. This resulted in an observed proportion of .30, compared to the expected proportion of .21. Analysis of this data yielded a z of 2.04, significant ($p < .05$, one-tailed) in the predicted direction. In other words, these Ss did choose majors which they had rated, on the basis of comparisons with average students, as representing an intermediate probability of success.

Tests of these hypotheses concerning Ss with negative resultant motivation were based on the proportions of curricular choices falling within the 0.0 or 1.00 category. Table 2 shows that 51 Ss obtained negative resultant motivation scores. Of these, 29 Ss chose majors which they had rated on question one of the Curricula Questionnaire as representing either a low or high probability of success. This resulted in an observed proportion of .57, compared to the expected proportion of .37. The one-sample binomial test of this data yielded a z of 2.96, highly significant ($p < .01$, one-tailed) in the predicted direction. In like manner, 33 Ss chose majors which they had rated on question two of the Curricula Questionnaire as representing either a low or a high probability of success. The observed proportion of .06 was compared to the expected proportion of .44. Analysis of this data yielded a z of 2.77, significant ($p < .01$, one-tailed) in the predicted direction. As such, results confirm the hypothesis that Ss with negative resultant motivation scores tend to choose majors in which the probability of success is either low or high, regardless of the way in which subjective judgments are made.

Discussion

On the basis of Atkinson's (1957, 1958) model of risk-taking behavior as well as previous research with high school and college students in hypothetical choice situations (Isaacson, 1964; Mahone, 1960; Morris, 1966; Tseng and Carter, 1970), it was predicted that students with positive resultant motivation scores would select majors where the probability of success is intermediate, and that students with negative resultant motivation scores would select majors where the perceived probability of success is low or high. The results of this study can be taken as either confirming or disconfirming these predictions, depending on the method used to assess subjective probability of success.

When probability of success is assessed by having the student use himself and his own capabilities as the standard for judging success, results confirm only the hypothesis that students with negative resultant motivation scores will select majors in which the probability of success is either low or high. Predictions do not hold for students with positive resultant motivation scores, who also tend to choose majors in which the probability of success is low or high. This set of findings is probably attributable to the fact that when probability of success is judged by asking the student to use himself as the standard, all students, whether low or high in resultant motivation, tend to view their probability of success as high, that is, perceive their chosen curriculum as being easy for themselves.

When subjective probability of success is assessed by using the student's estimate of how well <u>others</u> will do in a given curriculum, results are consistent with Atkinson's model and previous research. Students, with positive resultant motivation do tend to choose majors in which the probability of

success (of others) is seen as intermediate. Likewise, students with negative resultant motivation tend to choose majors which they see as representing (for others) either a low or high probability of success.

These results seem to indicate that students may choose their majors in a way that is consistent with Atkinson's model, but that they also engage in some process which allows them to perceive their own chances of success as high. Since students were selected randomly, it is unlikely that all were as capable as their self-perceptions suggest. Other explanations of the observed phenomena seem necessary. One possible explanation is that of cognitive dissonance (Festinger, 1957). If a college major is chosen in which the probability of success is seen as low or intermediate, this choice may arouse anxiety in the student. The student may then alter the view of his chances of success in order to reduce cognitive dissonance. Another possible explanation is college students may tend to be generally unrealistic in their perceptions of the achievement related capabilities. While there is little direct evidence to support this hypothesis, the present findings suggest this as a strong possibility.

The present findings also demonstrate the fact that the method of assessing probability of success can have a significant effect on results. It is quite possible that question one on the Curricula Questionnaire in this study was not measuring subjective probability at all. It may instead reflect what Ss wanted to accomplish or hoped to do. If this is the case, the results of this study may help to clarify some possible discrepancies between the findings of Tseng and Carter (1970) and those of other investigators. Tseng and Carter (1970) found that Ss high in resultant motivation tended to have higher occupational aspirations and to choose more prestigious occupations than Ss low in resultant motivation. Since such aspirations and

preferences seem likely to involve a high degree of risk, the results of the study do not appear to be consistent with previous findings that Ss high in resultant motivation tend to make choices involving an intermediate degree of risk. However, it may be that these findings, as in the present study, are more of a reflection of what a S would like or hopes to do.

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Footnotes

1. Portions of this paper were presented at the annual meeting of the Eastern Psychological Association, Boston, Massachusetts, 1972.

2. Requests for reprints should be sent to Peter A. Wish, Department of Psychology, Framingham State College, Framingham, Massachusetts.

Table 1

Hypothetical Protocol of the Curricula Questionnaire with Appropriate Ratings Underlined.

If there were 100 School of Management students pretty much <u>like</u> <u>you</u> majoring in each of the following six curricula, how many would you expect to get their degrees in each?

Accounting	0	10	20	30	40	<u>50</u>	60	70	80	90	100
Computer Sci.	0	10	<u>20</u>	30	40	50	60	70	80	90	100
Economics	0	10	20	<u>30</u>	40	50	60	70	80	90	100
Finance	0	10	<u>20</u>	30	40	50	60	70	80	90	100
Management Prod.	0	10	20	30	<u>40</u>	50	60	70	80	90	100
Marketing	0	10	20	30	40	50	60	<u>70</u>	80	90	100

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Table 2

Expected and Observed Frequencies and Proportions of Curricular Choices by Category of Ss with Positive and Negative Resultant Motivation on Questions 1 and 2 of the Curricular Questionnaire.

Question	Motivation	Frequency						Proportion					
		Expected			Observed			Expected			Observed		
		.50	0.00 or 1.00	other	.50	0.0 or 1.00	other	.50	0.0 or 1.00	other	.50	0.0 or 1.00	other
1	Positive N=91	23	35	33	12	56	23	.25	.39	.36	.13	.62	.25
	Negative N=51	13	19	19	8	29	14	.26	.37	.37	.16	.57	.27
2	Positive N=91	19	36	36	27	38	26	.21	.40	.40	.30	.42	.29
	Negative N=51	11	22	18	10	33	8	.22	.44	.34	.20	.66	.14